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Flint et al.

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(54) **CIRCULATION HEATER**

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(58) **Field of Classification Search**

None

See application file for complete search history.

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(57) **ABSTRACT**

A circulation heater is provided which uses a cast body, having resistance heating elements therein and also having spirally wound Teflon tubing wrapped about the heater body. The heater body is formed of cast aluminum or other suitable cast material and after casting is machined to form at least one spiral channel for receiving the heater tube therein. The heater tube is pressed into the tubing channel as the heater tube is progressively wound spirally about the heater body. The channel is formed with an undercut profile wherein the channel is undercut to form a narrower mouth which allows the heater tube to be compressed and then snapped into the channel. The profile of this channel insures direct contact between the tubing and the channel wall over greater than 180 degrees or more than one half of the tube circumference to increase the area of surface contact between the heater tube and channel surface.

18 Claims, 6 Drawing Sheets